

DECISION RECORD

DOI-BLM-NM-P010-2015-0082 EA

Proposed Decision: It is my decision to implement the BLM-Preferred Alternative as described in DOI-BLM-NM-P010-2015-0082-EA and to issue permit for the allotments analyzed in this document. The mitigation measures identified in the environmental assessment (EA) have been formulated into terms and conditions that will be attached to the grazing permit/lease. This decision incorporates, by reference, those conditions identified in the attached Environmental Assessment. A summary table follows:

	Table 1							
Allot #	Allotment Name		Acres of Public Land	Acres of Private & State Land	% Public Land	Animal Units Authorized	Class of Livestock	Animal Unit Months
61006	Fritz Place		320	5740	100	5	Cattle	60
61007	Chaveroo		320	3385	100	5	Cattle	60
61008	Gallina Wells		2880	19940	100	42	Cattle	504
65110	Barringer Wells		8252	29896				
	Pasture/Management Unit	Barringer Tank			100	60	Cattle	720
		Salt Lake			100	30	Cattle	360
		Three Wells			47	91	Cattle	516
TOTAL			11723	58961				2221

Rationale: Based on the rangeland health assessments (RHAs) and previous monitoring, resource conditions on these allotments are sufficient and sustainable to support the level of use outlined in the term grazing lease.

The Proposed Action will be in compliance with the 1997 Roswell Resource Management Plan and Record of Decision, the 2008 Special Status Species Resource Management Plan Amendment (2008 RMPA), and the 2001 New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management.

If you wish to protest this proposed decision in accordance with 43 CFR 4160.2, you are allowed 15 days to do so in person or in writing to the authorized officer, after the receipt of this decision. Please be specific in your points of protest.

The protest shall be filed with the Field Manager, Bureau of Land Management, 2909 West 2nd, Roswell, NM 88201. This protest should specify, clearly and concisely, why you think the proposed action is in error.

In the absence of a protest within the time allowed, the above decision shall constitute my final decision. Should this notice become the final decision, you are allowed an additional 30 days within which to file an appeal for the purpose of a hearing before the Interior Board of Land Appeals, and to petition for stay of the decision pending final determination on the appeal (43 CFR 4.21 and 4.410). If a petition for stay is not requested and granted, the decision will be put into effect following the 30-day appeal period. The appeal and petition for stay should be filed with the Field Manager at the above address. The appeal should specify, clearly and concisely, why you think the decision is in error. The petition for stay should specify how you will be harmed if the stay is not granted.

/s/ Kyle S. Arnold
Kyle Arnold
Assistant Field Manager, Resources

10/13/2015
Date

DOI-BLM-NM-P010-2015-0082-EA

FINDING OF NO SIGNIFICANT IMPACT:

I have determined that the BLM Preferred Alternative (Alternative A), as described in the Environmental Assessment (EA) will not have any significant impact, individually or cumulatively, on the quality of the human environment. Because there would not be any significant impact, an environmental impact statement is not required. The NEPA handbook (p. 83) indicates that the FINDING OF NO SIGNIFICANT IMPACT (FONSI) must succinctly state the reasons for deciding that the action will have no significant environmental effects. It also recommends that the FONSI address the relevant context and intensity factors.

In making this determination, I considered the following factors:

1. The activities described in the BLM Preferred Alternative (Alternative A) do not include any significant beneficial or adverse impacts (40 CFR 1508.27(b)(1)). The EA includes a description of the expected environmental consequences of issuing a 10 year term grazing permit on Allotment 5079.
2. The activities included in the proposed action would not significantly affect public health or safety (40 CFR 1508.27(b)(2)).
3. The proposed activities would not significantly affect any unique characteristics (40 CFR 1508.27(b)(3)) of the geographic area such as prime and unique farmlands, caves, wild and scenic rivers, designated wilderness areas or wilderness study areas.
4. The activities described in the proposed action do not involve effects on the human environment that are likely to be highly controversial (40 CFR 1508.27(b)(4)).
5. The activities described in the proposed action do not involve effects that are highly uncertain or involve unique or unknown risks (40 CFR 1508.27(b)(5)).
6. My decision to implement these activities does not establish a precedent for future actions with significant effects or represent a decision in principle about a future consideration (40 CFR 1508.27(b)(6)).
7. The effects of issuing a term permit would not be significant, individually or cumulatively, when considered with the effects of other actions (40 CFR 1508.27(b)(7)). The EA discloses that there are no other connected or cumulative actions that would cause significant cumulative impacts.
8. I have determined that the activities described in the proposed action will not adversely affect or cause loss or destruction of scientific, cultural, or historical resources, including those listed in or eligible for listing in the National Register of Historic Places (40 CFR 1508.27(b)(8)).

Cultural resource surveys in the allotment have been generally limited to inspections ahead of oil and gas related activities, such as well locations and pipelines. Many areas of the allotment have been generally inventoried for cultural resources. The existing cultural data for the allotment and adjacent areas seems to be a good example of what can be reasonably expected to occur in the remainder of the allotment. No site-specific situations are known to exist where current grazing practices conflict with cultural resource preservation and management. Some mitigation is included in the proposed action to protect cultural resources from grazing practices, such as: "In the event that grazing practices are determined to have an adverse effect on cultural resources within the allotment, the BLM, in consultation with the permittee, will take action(s) to mitigate or otherwise negate the effects. This may include but is not limited to installing physical barriers to protect the affected cultural resources, relocating the livestock grazing practice(s) that is (are) causing the adverse effect(s), or any other treatment as appropriate. Page 19-20 of the EA describe the affected environment and impacts of the proposed action and alternatives on cultural resources.

9. The proposed activities are not likely to adversely affect any endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act (40 CFR 1508.27(b)(9)). Within the allotment there are no known populations of threatened and endangered species, or designated critical habitat within the allotment.

10. The proposed activities will not threaten any violation of Federal, State, or local law or requirements imposed for the protection of the environment (40 CFR 1508.27(b)(10)). Page 8 of the EA describes the conformance with land use plans and relationships to statutes, regulations, or other plans.

APPROVED:

/s/ Kyle S. Arnold

Kyle S. Arnold

Assistant Field Manager, Resources

10/13/2015

Date

United States Department of the Interior Bureau of Land Management

Environmental Assessment DOI-BLM-NM-P010-2015-0082-EA

**Issuance of Term Grazing Permit/Lease on:
Allotment Numbers 61006 (Fritz Place), 61007 (Chaveroo),
61008 (Gallina Wells), 65010 (Three Wells)
65011 (Salt Lake) & 65012 (Barringer Tank)**

U.S. Department of the Interior
Bureau of Land Management
Pecos District
Roswell Field Office
2909 West Second Street
Roswell, NM 88201-2019
Phone: (575) 627-0272
FAX: (575) 627-0276

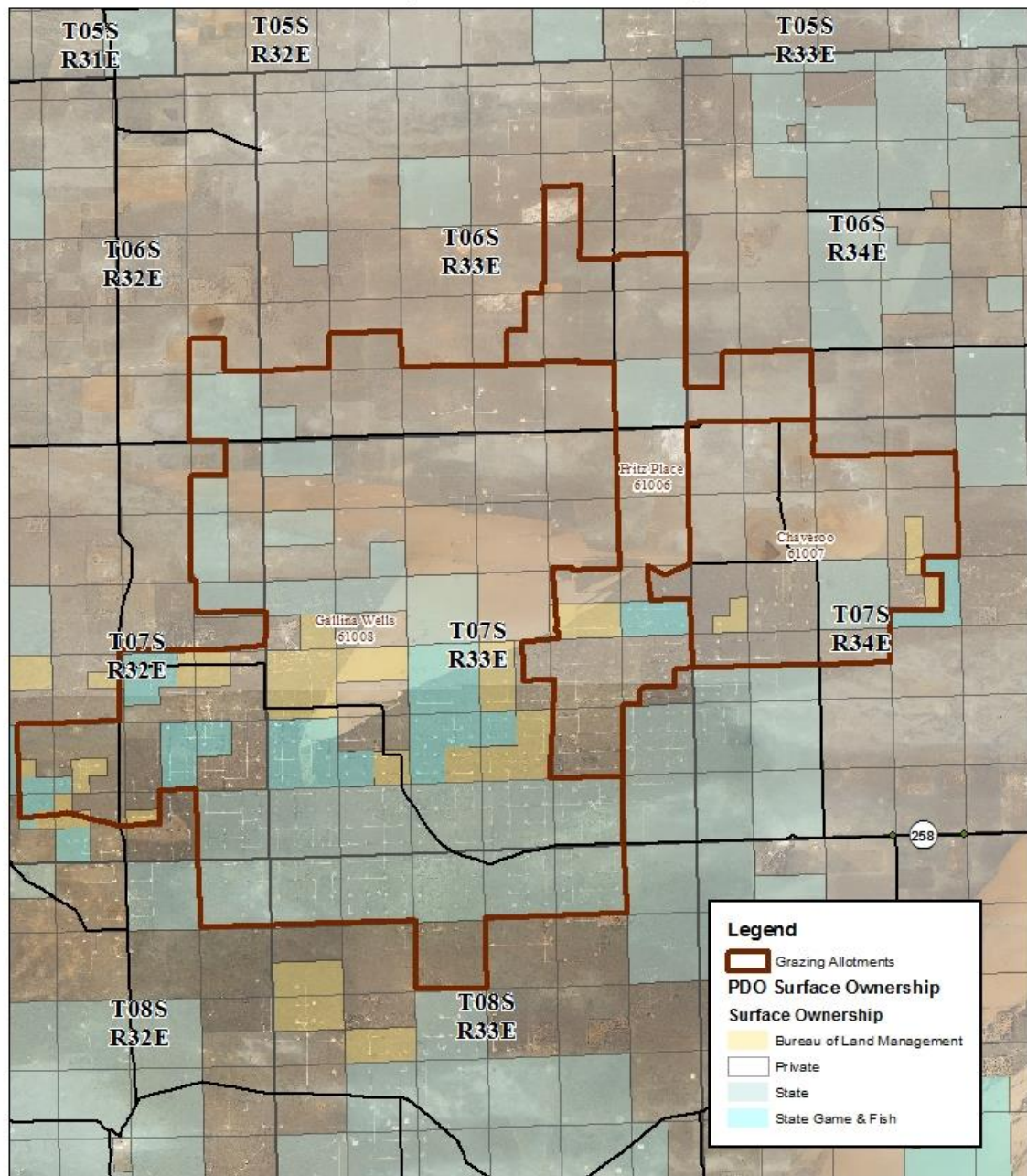
Roswell Field Office

Confidentiality Policy

Any comments, including names and street addresses of respondents, that you submit may be made available for public review. Individual respondents may request confidentiality. If you wish to withhold your name or street address from public review or from disclosure under the Freedom of Information Act, you must state this prominently at the beginning of your written comment. Such requests will be honored to the extent allowed by law. All submissions from organizations or businesses, and from individuals identifying themselves as representatives or officials of organizations or businesses, will be made available for public inspection in their entirety.



Allotment 61006 - Fritz Place, 61007 - Chaveroo, 61008 - Gallina Wells



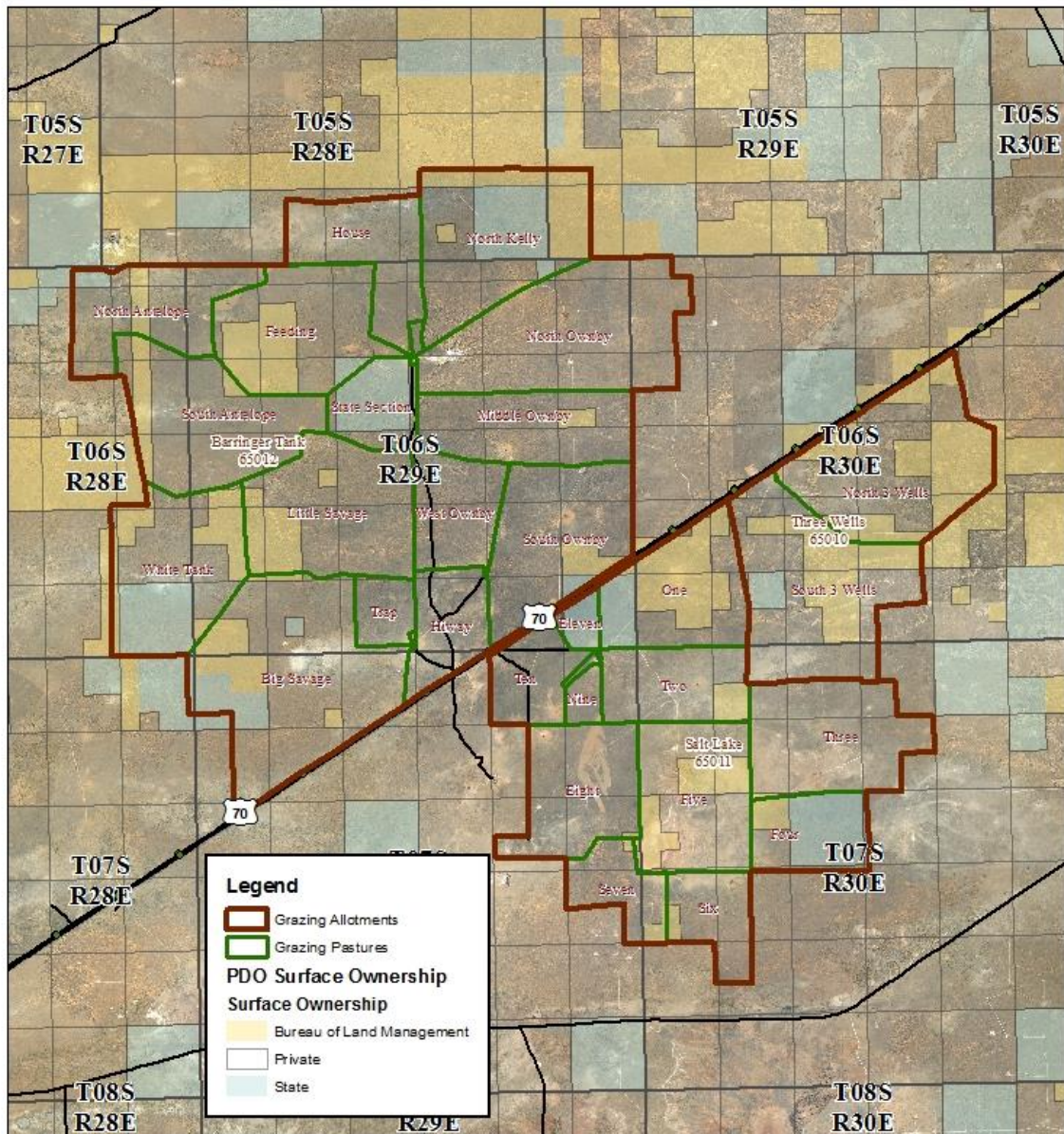
No Warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by the BLM. Spatial Information may not meet National Map Accuracy Standards. This information is subject to change without notification.



0 1 2 4 Miles



Allotment 65010-Three Wells, 65011-Salt Lake & 65012- Barringer Tank,
what would become Allotment 65110 - Barringer Wells



No Warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by the BLM. Spatial Information may not meet National Map Accuracy Standards. This information is subject to change without notification.



0 1 2 4 Miles



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1.0 Purpose and Need for Action

1.1 Introduction

This environmental assessment is limited to the effects of issuing a new grazing permit/lease on allotments 61006, 61007, 61008, 65010, 65011 & 65012. Over time, the need could arise for subsequent management activities which relate to grazing authorization. These activities could include vegetation treatments (e.g., prescribed fires, herbicide projects), range improvement projects (e.g., fences, water developments), and others. Future rangeland management actions related to livestock grazing would be addressed in project specific NEPA documents as they are proposed.

Though this environmental assessment specifically addresses the impacts of issuing a grazing permit on the allotment, it does so within the context of overall BLM management goals. Allotment management activities would have to be coordinated with projects intended to achieve the allotment management goals. For example, a vegetation treatment designed to enhance watershed condition or wildlife habitat may require rest from livestock grazing for one or more growing seasons. Requirements of this type would be written into the permit as terms and condition.

To qualify for a grazing permit the 43 Code of Federal Regulation (CFR) Section 4100 §4110.2-1(a) the authorized officer shall find land or water owned or control by an applicant to be base property if: (1) It is capable of serving as a base of operation for livestock use of public lands within a grazing district; or (2) It is contiguous land that is capable of being used in conjunction with a livestock operation which would utilize public lands outside of a grazing district.

The existing lease on allotment 61006, 61007 & 61008 is going to expire; the allottee has made application to renew the term lease.

The prior allottee on Allotment 65010, 65011 & 65012 has sold the base property (private land) to a new individual. The new individual, now the applicant has made application for the grazing privileges on those allotments.

The public land within allotments 61006, 61007 & 61008 is located in the 1208000102-Sulphur Draw Watershed in Roosevelt County. The allotments are about 32 miles northwest of Tatum, south of US Hwy 70. See Location Map. Elevations range from about 4,450 feet along the west side of the allotments to 4,290 feet along the eastern edge.

The public land within allotment 65010, 65011 & 65012 is located in the 1306000701 Little Red Lake Watershed in Chaves County. The allotments are about 38 miles north east of Roswell and are about 20

miles west of allotments 61006, 61007 & 61008. See Location Map. Elevations range from 4,185 feet on the northern edges of Barringer Tank, allotment 65012 to 4,050 feet at Salt Lake in Allotment 65011.

The climate is semi-arid with normal annual temperatures ranging from 20°F to 95°F; extremes of 29° below zero to 103° are also possible. Average annual precipitation is approximately 13-16 inches in the form of rainfall and snow.

Preparing Office:
Pecos District, Roswell Field Office
2909 W. Second Street
Roswell, NM 88201

1.2 Purpose and Need for Action

The purpose of issuing new grazing leases would be to authorize livestock grazing on public range on Allotment 61006, 61007 & 61008. A new grazing lease would be issued on Allotment 65010, 65011 and 65012 after combining the three allotments into one management unit, under allotment number 65110. The leases would be need to specify the types and levels of use authorized, and the terms and conditions of the authorization pursuant to 43 CFR §§4130.3, 4130.3 1, 4130.3 2, and 4180.1.

1.3 Decisions to be Made

The Decisions to be made upon the completion of this Environmental Assessment are: to issue Grazing leases and authorize grazing on Allotment 61006, 61007 & 61008 and on Allotment 65110; to authorize the level of grazing on the allotments and to authorize the classes of livestock grazing on the allotments.

1.4 Conformance with Applicable Land Use Plan(s)

The proposed action conforms to the 1997 Roswell Approved Resource Management Plan (RMP) and Record of Decision as amended; 2008 Special Status Species Resource Management Plan Amendment (2008 RMPA), and the 2000 New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management and Record of Decision as required by 43 CFR 1610.5 3.

1.5 Relationship to Statutes, Regulations or Other Plans

The proposal to issue the livestock grazing permit on these allotments is in conformance with the 1994 Environmental Impact Statement for Rangeland Reform; the Federal Land Policy and Management Act of 1976 (FLPMA) (43 U.S.C. 1700 et seq.); the Taylor Grazing Act of 1934 (TGA) (43 U.S.C. 315 et seq.); the Public Rangelands Improvement Act of 1978 (PRIA) (43 U.S.C. 1901 et seq.); Federal Cave Resources Protection Act of 1988. The Roswell Field Office wildlife biologist reviewed and determined the proposed actions are in compliance with the Biological Assessment and the accompanying Concurrence letter by the Fish and Wildlife Service. The conservation measures in the Biological Assessment, Consultation #02ENNM00-2015-I-0175, are being implemented on the allotments.

1.6 Scoping, Public Involvement, and Issues

The Base property (private lands) within allotment 65110, were sold to a new individual, who then made application for the grazing lease. The grazing lease is expiring on allotment 61006, 61007 & 61008. The allottee has made application to renew the leases. The BLM, Roswell Field Office ID team initially considered the action on May 20, 2015 and determined that BLM should move forward with consideration of issuing new term grazing leases.

2.0 Proposed Action and Alternative(s)

Under the No Action Alternative, (Alternative A) the action is to issue a term lease to graze cattle and horses on these allotments at the existing level of grazing. The permitted use is based on long term monitoring and rangeland conditions prior to 2015. Additionally a rangeland health assessment has been completed and the allotments meet the Standards for Public Land Health. If the proposed action is selected the Decision will be implemented to offer a new term grazing lease on the allotments at the end of the Protest & Appeal Period. See Table 1 below for details.

Table 1							
Allot #	Allotment Name	Acres of Public Land	Acres of Private & State Land	% Public Land	Animal Units Authorized	Class of Livestock	Animal Unit Months
61006	Fritz Place	320	5740	100	5	Cattle	60
61007	Chaveroo	320	3385	100	5	Cattle	60
61008	Gallina Wells	2880	19940	100	42	Cattle	504
65010	Three Wells	2478	2744	100	43	Cattle	516
65011	Salt Lake	1933	6864	100	30	Cattle	360
65012	Barringer Tank	3841	20288	100	60	Cattle	720
TOTAL		11723	58961		185		2220

See Attached Map.

2.1 Alternatives Considered by Not Analyzed in Detail

Grazing with reduced numbers – BLM considered authorizing grazing with reduced numbers on this allotment. Grazing with reduced numbers would produce impacts similar to the proposed action. Additionally, this allotment meets the Standard for Public Land Health and monitoring studies do not indicate changes are necessary. Therefore, BLM will not analyze this alternative.

2.2 No Grazing Alternative

Under this alternative (Alternative B) a new grazing lease would not be issued for the allotments. No grazing would be authorized on federal land on these allotments under this alternative. Under this alternative and based on the land status pattern within the allotments, approximately 58.35 miles of new fences would be required to exclude grazing on the federal land.

2.3 Preferred Alternative

Under Preferred Alternative, (Alternative C) action is to issue a term lease to graze cattle and horses on these allotments at an adjusted level of grazing. The permitted use is based on long term monitoring and rangeland conditions prior to 2015. Additionally a rangeland health assessment has been completed and the allotments meet the Standards for Public Land Health. If the preferred action is selected the Decision will be implemented to offer a new term grazing lease on the allotments at the end of the Protest & Appeal Period. See Table 2 below for details.

	Table 2							
Allot #	Allotment Name		Acres of Public Land	Acres of Private & State Land	% Public Land	Animal Units Authorized	Class of Livestock	Animal Unit Months
61006	Fritz Place		320	5740	100	5	Cattle	60
61007	Chaveroo		320	3385	100	5	Cattle	60
61008	Gallina Wells		2880	19940	100	42	Cattle	504
65110	Barringer Wells		8252	29896				
	Pasture/Management Unit	Barringer Tank			100	60	Cattle	720
		Salt Lake			100	30	Cattle	360
		Three Wells			47	91	Cattle	516
TOTAL			11723	58961				2221

3.0 Affected Environment, Environmental Consequences, and Cumulative Impacts

During the analysis process, the interdisciplinary team considered several resources and supplemental authorities. The interdisciplinary team determined that the resources discussed below would be affected by the proposed actions.

The following resources or values are not present or would not be affected by the authorization of livestock grazing on this allotment: Areas of Critical Environmental Concerns, Prime or Unique Farmland, Minority/Low Income Populations, Public Health and Safety, Hazardous or Solid Wastes, Solid Mineral Resources, Geology, Fluid Mineral Resources, Wild and Scenic Rivers, and Wilderness.

Affected resources and the impacts resulting from livestock grazing are described below.

3.1 Soil / Water / Air

► Climate

Affected Environment

Climate is the composite of generally prevailing weather conditions of a particular region throughout the year, averaged over a series of years. GHG's and the potential effects of GHG emissions on climate are not regulated by the EPA, however climate has the potential to influence renewable and non-renewable resource management.

Greenhouse gases, including carbon dioxide (CO₂) and methane (CH₄), and the potential effects of GHG emissions on climate, are not regulated by the EPA under the Clean Air Act. However, climate has the potential to influence renewable and non-renewable resource management. The EPA's Inventory of US Greenhouse Gas Emissions and Sinks found that in 2006, total US GHG emissions were over 6 billion metric tons and that total US GHG emissions have increased by 14.1% from 1990 to 2006. The report also noted that GHG emissions fell by 1.5% from 2005 to 2006. This decrease was, in part, attributed to the increased use of natural gas and other alternatives to burning coal in electric power generation.

The levels of these GHGs are expected to continue increasing. The rate of increase is expected to slow as greater awareness of the potential environmental and economic costs associated with increased levels of GHG's result in behavioral and industrial adaptations.

Global mean surface temperatures have increased nearly 1.0°C (1.8°F) from 1890 to 2006 (Goddard Institute for Space Studies, 2007). However, observations and predictive models indicate that average temperature changes are likely to be greater in the Northern Hemisphere. Without additional meteorological monitoring systems, it is difficult to determine the spatial and temporal variability and change of climatic conditions, but increasing concentrations of GHGs are likely to accelerate the rate of climate change.

In 2001, the Intergovernmental Panel on Climate Change (IPCC) predicted that by the year 2100, global average surface temperatures would increase 1.4 to 5.8°C (2.5 to 10.4°F) above 1990 levels. The National Academy of Sciences (2006) supports these predictions, but has acknowledged that there are uncertainties regarding how climate change may affect different regions. Computer model predictions indicate that increases in temperature will not be equally distributed, but are likely to be accentuated at higher latitudes. Warming during the winter months is expected to be greater than during the summer, and increases in daily minimum temperatures is more likely than increases in daily maximum temperatures.

A 2007 US Government Accountability Office (GAO) Report on Climate Change found that, "federal land and water resources are vulnerable to a wide range of effects from climate change, some of which are already occurring. These effects include, among others: 1) physical effects such as droughts, floods, glacial melting, and sea level rise; 2) biological effects, such as increases in insect and disease infestations, shifts in species distribution, and changes in the timing of natural events; and 3) economic

and social effects, such as adverse impacts on tourism, infrastructure, fishing, and other resource uses." It is not, however, possible to predict with any certainty regional or site specific effects on climate relative to the proposed permitted allotments and subsequent actions.

In New Mexico, a recent study indicated that the mean annual temperatures have exceeded the global averages by nearly 50% since the 1970's (Enquist and Gori). Similar to trends in national data, increases in mean winter temperatures in the southwest have contributed to this rise. When compared to baseline information, periods between 1991 and 2005 show temperature increases in over 95% of the geographical area of New Mexico. Warming is greatest in the northwestern, central, and southwestern parts of the state.

Impacts from the No Action Alternative A and the Preferred Alternative (Alternative C) - Direct and Indirect Impacts

Climate change analyses are comprised of several factors, including greenhouse gases (GHGs), land use management practices, the albino effect, etc. The tools necessary to quantify climatic impacts from the Proposed Action or the Preferred Alternative are presently unavailable. As a consequence, impact assessment of specific effects of anthropogenic activities cannot be determined. Additionally, specific levels of significance have not yet been established. Therefore, climate change analysis for the purpose of this document is limited to accounting and disclosing of factors that may contribute to climate change. Qualitative and/or quantitative evaluation of potential contributing factors within the planning area is included where appropriate and practicable.

Impacts from the No Grazing Action - Direct and Indirect Impacts

There will be no direct or indirect impacts to climate if a no grazing action is selected.

Cumulative Impacts of all Alternatives

The incremental impact of issuing a grazing permit on climate resources must be analyzed in the context of impacts from other actions. Other BLM actions that could have impacts on the identified resources include: livestock authorization on other allotments in this area; oil and gas activities on the uplands; rights-of way crossing the area; and recreation use, particularly off-highway vehicles. All authorized activities which occur on BLM land can also take place on state and private land.

Many of the actions which could contribute to cumulative impacts have occurred over many years. Impacts from open-range livestock grazing in the last century are still being addressed today. Oil and gas activities began in the early part of the 20th century. These activities are still occurring today, and are expected to continue into the foreseeable future to some degree.

If the No-Grazing Alternative were chosen, some adverse cumulative impacts on climate resources would be eliminated, but others would occur. Grazing would no longer be available as a vegetation management tool, and BLM lands within the allotments would be less intensively managed.

Mitigation Measures and Residual Impacts

A rangeland health assessment has been completed and the allotments meet the Standards for Public Land Health. Rangeland monitoring would help ensure that adequate vegetation cover is maintained to protect the soil from erosion which would decrease dust levels resulting from allotment management activities.

➤ Soils

Affected Environment

The Soil Conservation Service, now the Natural Resource Conservation Service (NRCS), has surveyed the soils in Chaves and Roosevelt County. Complete soil information is available in the Soil Survey of Chaves County, New Mexico, Northern Part (USDA Soil Conservation Service 1983); Soil Survey Roosevelt County, New Mexico (USDA Soil Conservation Service 1967) and online at <http://websoilsurvey.nrcs.usda.gov/app/>. The soil map units represented in the project area are:

Chaves County Soils:

Ratliff-Redona Association, gently undulating (RBA) Runoff is slow and the hazard of water erosion is slight and soil blowing is high.

Sharvana, dry Redona Association, gently undulating (SLA). Runoff is medium and the hazard of water erosion is moderate. The hazard of soil blowing is high.

Jalmar-Roswell –Pyote Association, moderately undulating (JRC). Runoff is slow and the hazard of water erosion is slight. The hazard of soil blowing is very high

Pyote-Faskin Association, moderately undulating (PYB). Runoff is slow to medium, the hazard of water erosion is slight to moderate. The hazard of soil blowing is very high.

Blakeney-Ratliff Association, moderately undulating (BRB). Runoff is medium and the hazard of water erosion is moderate. The hazard of soil blowing is high.

Redona-Canez Association, gently undulating (RHA). Runoff is medium and the hazard of water erosion is moderate. The hazard of soil blowing is high.

Faskin-Malmstorm association, gently undulating (FMA). Runoff is medium and the hazard of water erosion is moderate. The hazard of soil blowing is very high.

Chispa-Malmstrom Association, moderately undulating (CMB). Runoff is medium and the hazard of water erosion is moderate. The hazard of soil blowing is high to very high.

Roswell-Jalmar fine sands, hilly (RPD). Runoff is slow and the hazard of water erosion is slight. The hazard of soil blowing is very high.

Roosevelt County Soils:

Tivoli fine sands (Tf). Runoff is slight, with little resistance to damage by wind. Potential for wind erosion if moderate to severe.

Brownfield fine sands (Be). Runoff is slight and internal drainage is good. Hazard of wind erosion is severe.

Impacts from the No Action Alternative A and the Preferred Alternative (Alternative C) - Direct and Indirect Impacts

Under the No Action – Alternative A and the Preferred Alternative (Alternative C), livestock would remove some of the cover of standing vegetation and litter, and compact the soil by trampling. If livestock management were inadequate, these effects could be severe enough to reduce infiltration rates and increase runoff, leading to greater water erosion and soil losses (Moore et al. 1979, Stoddart et al. 1975). Producing forage and protecting the soil from further erosion would then be more difficult. The greatest impacts of removing vegetation and trampling would be expected in areas of concentrated livestock use, such as trails, waters, feeders, and shade.

Under Alternative A and Alternative C, rangeland monitoring would help ensure that adequate vegetation cover is maintained to protect the soil from erosion. Low/moderate forage quality plants provide protection to the soils resource.

Impacts from the No Grazing Action - Direct and Indirect Impacts

Under No-Grazing Alternative, any adverse impact from livestock grazing would be eliminated. However, it is possible that removing grazing animals from an area where they were a natural part of the landscape could result in poor use of precipitation and inefficient mineral cycling (Savory 1988). Bare soil could be sealed by raindrop impact, and vegetation could become decadent, inhibiting new growth. Therefore, the results of no grazing could be similar to those of overgrazing in some respects.

Cumulative Impacts of all Alternatives

The incremental impact of issuing a grazing permit on soil resources must be analyzed in the context of impacts from other actions. Other BLM actions that could have impacts on the identified resources include: livestock authorization on other allotments in this area; oil and gas activities on the uplands; rights-of way crossing the area; and recreation use, particularly off-highway vehicles. All authorized activities which occur on BLM land can also take place on state and private land.

Many of the actions which could contribute to cumulative impacts have occurred over many years. Impacts from open-range livestock grazing in the last century are still being addressed today. Oil and gas activities began in the early part of the 20th century. These activities are still occurring today, and are expected to continue into the foreseeable future to some degree.

If the No-Grazing Alternative were chosen, some adverse cumulative impacts would be eliminated to soil resources, but others would occur. Grazing would no longer be available as a vegetation management tool, and BLM lands within the allotments would be less intensively managed.

Cumulative long term monitoring data reflect the soils are being adequately protected.

Mitigation Measures and Residual Impacts

A rangeland health assessment has been completed and the allotments meet the Standards for Public Land Health. Continued rangeland monitoring would help ensure that adequate vegetation cover is maintained to protect the soil from erosion.

➤ Air Quality

Affected Environment

The Environmental Protection Agency (EPA) has the primary responsibility for regulating air quality, including seven nationally regulated ambient air pollutants. Regulation of air quality is also delegated to some states. Air quality is determined by atmospheric pollutants and chemistry, dispersion meteorology and terrain, and also includes applications of noise, smoke management, and visibility.

The allotments are in an area that is considered a Class II air quality area. A Class II area allows moderate amounts air quality degradation. The primary sources of air pollution are dust from blowing wind on disturbed or exposed soil and exhaust emissions from motorized equipment. Air quality in the area is generally good and is not located in any of the areas designated by the Environmental Protection Agency as “non-attainment areas” for any listed pollutants regulated by the Clean Air Act.

Air quality in the region is generally good, with winds averaging 10 to 16 miles per hour depending on the season. Peak velocities reach more than 50 miles per hour in the spring. These conditions rapidly disperse air pollutants in the region.

Impacts from the No Action Alternative and the Preferred Alternative (Alternative C) - Direct and Indirect Impacts

Air quality would temporary be directly impacted with pollution from enteric fermentation (ruminant livestock), chemical odors, and dust. Dust levels resulting from allotment management activities would be slightly higher under Alternative A and Alternative C than No-Grazing Alternative. The cumulative impact on air quality from the allotments would be negligible compared to all pollution sources in the region.

The federal Clean Air Act requires that air pollutant emissions be controlled from all significant sources in areas that do not meet the national ambient Air quality standards. The New Mexico Air Quality Bureau (NMAQB) is responsible for enforcing the state and national ambient air quality standards in New Mexico. Any emission source must comply with the NMAQB regulations. At the present time, the counties that lie within the jurisdictional boundaries of the Roswell Field Office are classified as in attainment of all state and national ambient air quality standards as defined in the Clean Air Act of 1972, as amended (USDI, BLM 2003b).

The Environmental Protection Agency (EPA), on October 17, 2006, issued a final ruling on the lowering of the National Ambient Air Quality Standard (NAAQS) for particulate matter ranging from 2.5 micron or

smaller particle size. This ruling became effective on December 18, 2006, stating that the 24-hour standard for PM_{2.5}, was lowered to 35 ug/m³ from the previous standard of 65 ug/m³. This revised PM_{2.5} daily NAAQS was promulgated to better protect the public from short-term particle exposure. The significant threshold of 35 ug/m³ daily PM_{2.5} NAAQS is not expected to be exceeded under the proposed action.

Impacts from the No Grazing Action - Direct and Indirect Impacts

There will be no direct or indirect impacts to air quality if a no grazing action is selected.

Cumulative Impacts of all Alternatives

The incremental impact of issuing a grazing permit on air resources must be analyzed in the context of impacts from other actions. Other BLM actions that could have impacts on the identified resources include: livestock authorization on other allotments in this area; oil and gas activities on the uplands; rights-of way crossing the area; and recreation use, particularly off-highway vehicles. All authorized activities which occur on BLM land can also take place on state and private land.

Many of the actions which could contribute to cumulative impacts have occurred over many years. Impacts from open-range livestock grazing in the last century are still being addressed today. Oil and gas activities began in the early part of the 20th century. These activities are still occurring today, and are expected to continue into the foreseeable future to some degree.

If the No-Grazing Alternative were chosen, some adverse cumulative impacts on air resources would be eliminated, but others would occur. Grazing would no longer be available as a vegetation management tool, and BLM lands within the allotments would be less intensively managed.

Mitigation Measures and Residual Impacts

A rangeland health assessment has been completed and the allotments meet the Standards for Public Land Health. Rangeland monitoring would help ensure that adequate vegetation cover is maintained to protect the soil from erosion which would decrease dust levels resulting from allotment management activities.

➤ Watershed Hydrology

Affected Environment

The watershed and hydrology in the area is affected by land and water use practices. The degree to which hydrologic processes are affected by land and water use depends on the location, extent, timing and the type of activity. Factors that currently cause short-lived alterations to the hydrologic regime in the area include livestock grazing management, recreational use activities, groundwater pumping and also oil and gas developments such as well pads, permanent roads, temporary roads, pipelines, and power lines.

Impacts from the No Action Alternative and the Preferred Alternative (Alternative C) - Direct and Indirect Impacts

Livestock grazing management and range improvement projects can result in long-term and short-term alterations to the hydrologic regime. Peak flow and low flow of perennial streams, ephemeral, and intermittent rivers and streams would be directly affected by an increase in impervious surfaces resulting from the construction of range improvement projects. The potential hydrologic effects to peak flow is reduced infiltration where surface flows can move more quickly to perennial or ephemeral rivers and streams, causing peak flow to occur earlier and to be larger. Increased magnitude and volume of peak flow can cause bank erosion, channel widening, downward incision, and disconnection from the floodplain. The potential hydrologic effects to low flow is reduced surface storage and groundwater recharge, resulting in reduced baseflow to perennial, ephemeral, and intermittent rivers and streams. The direct impact would be that hydrologic processes may be altered where the perennial, ephemeral, and intermittent river and stream system responds by changing physical parameters, such as channel configuration. These changes may in turn impact chemical parameters and ultimately the aquatic ecosystem.

Long-term direct and indirect impacts to the watershed and hydrology would continue for the life of the livestock grazing management and range improvement projects and would decrease once reclamation of the range improvement projects has taken place. Short-term direct and indirect impacts to the watershed and hydrology from access roads that are not surfaced with material would occur and would likely decrease in time due to reclamation efforts.

Under Alternatives A and C, rangeland monitoring would help ensure that adequate vegetation cover is maintained to protect the hydrologic regime. Low/moderate forage quality plants provide protection to the soils resource and hydrologic regime. Cumulative long-term monitoring data reflect the hydrologic regime is being adequately protected.

Impacts from the No Grazing Action - Direct and Indirect Impacts

Under the No-Grazing Alternative, any adverse impact from livestock grazing management and range improvement projects would be eliminated. However, it is possible that removing grazing animals from an area where they were a natural part of the landscape could result in poor use of precipitation and inefficient mineral cycling (Savory 1988). Bare soil could be sealed by raindrop impact, and vegetation could become decadent, inhibiting new growth. Therefore, the results of no grazing could be similar to those of overgrazing in some respects.

Cumulative Impacts of all Alternatives

The incremental impact of issuing a grazing permit on watershed hydrology resources must be analyzed in the context of impacts from other actions. Other BLM actions that could have impacts on the identified resources include: livestock authorization on other allotments in this area; oil and gas activities on the uplands; rights-of way crossing the area; and recreation use, particularly off-highway vehicles. All authorized activities which occur on BLM land can also take place on state and private land.

Many of the actions which could contribute to cumulative impacts have occurred over many years.

Impacts from open-range livestock grazing in the last century are still being addressed today. Oil and gas activities began in the early part of the 20th century. These activities are still occurring today, and are expected to continue into the foreseeable future to some degree.

If the No-Grazing Alternative were chosen, some adverse cumulative impacts on watershed hydrology resources would be eliminated, but others would occur. Grazing would no longer be available as a vegetation management tool, and BLM lands within the allotments would be less intensively managed.

Mitigation Measures and Residual Impacts

A rangeland health assessment has been completed and the allotments meet the Standards for Public Land Health. Rangeland monitoring would help ensure that adequate vegetation cover is maintained to protect the soil from erosion which would decrease dust levels resulting from allotment management activities.

➤ Water Quality - Surface

Affected Environment

No perennial surface water is found on the Public Land on these allotments. Ephemeral stream occur on Public Land on these allotments.

Impacts from the No Action Alternative and the Preferred Action (Alternative C) Direct and Indirect Impacts

Direct and indirect impacts to surface water quality would be minor, short-term impacts during stormflow events.

Impacts from the No Grazing Action - Direct and Indirect Impacts

There will be no direct or indirect impacts to surface water quality if a no grazing action is selected.

Cumulative Impacts of all Alternatives

The incremental impact of issuing a grazing permit on surface water resources must be analyzed in the context of impacts from other actions. Other BLM actions that could have impacts on the identified resources include: livestock authorization on other allotments in this area; oil and gas activities on the uplands; rights-of way crossing the area; and recreation use, particularly off-highway vehicles. All authorized activities which occur on BLM land can also take place on state and private land.

Many of the actions which could contribute to cumulative impacts have occurred over many years. Impacts from open-range livestock grazing in the last century are still being addressed today. Oil and gas activities began in the early part of the 20th century. These activities are still occurring today, and are expected to continue into the foreseeable future to some degree.

If the No-Grazing Alternative were chosen, some adverse cumulative impacts on surface water resources would be eliminated, but others would occur. Grazing would no longer be available as a vegetation management tool, and BLM lands within the allotments would be less intensively managed.

Mitigation Measures and Residual Impacts

A rangeland health assessment has been completed and the allotments meet the Standards for Public Land Health. Rangeland monitoring would help ensure that adequate vegetation cover is maintained to protect the soil from erosion which would decrease dust levels resulting from allotment management activities.

➤ Water Quality - Ground

Affected Environment

Fresh water sources are located in the Quaternary Shallow Alluvial. The approximate depth to water in area ranges from 50 to 250 feet in shallow alluvial aquifer (Geohydrology and Associates Chaves County Groundwater Table Map).

Impacts from the No Action Alternative and the Preferred Alternative (Alternative C) - Direct and Indirect Impacts

The proposed action of offering a grazing permit under Alternative A or Alternative C would not have a significant effect on ground water. Livestock would be dispersed over the allotments, and the soil would filter potential contaminants.

Under the Alternatives A and C, rangeland monitoring would help ensure that adequate vegetation cover is maintained to protect surface and groundwater. Low/moderate forage quality plants provide protection to the surface and groundwater. Cumulative long-term monitoring data reflect the surface and groundwater are being adequately protected.

Impacts from the No Grazing Action - Direct and Indirect Impacts

Under the No-Grazing Alternative, any adverse impact from livestock grazing would be eliminated. However, it is possible that removing grazing animals from an area where they were a natural part of the landscape could result in poor use of precipitation and inefficient mineral cycling (Savory 1988). Bare soil could be sealed by raindrop impact, and vegetation could become decadent, inhibiting new growth. Therefore, the results of no grazing could be similar to those of overgrazing in some respects.

Cumulative Impacts of all Alternatives

The incremental impact of issuing a grazing lease on groundwater resources must be analyzed in the context of impacts from other actions. Other BLM actions that could have impacts on the identified resources include: livestock authorization on other allotments in this area; oil and gas activities on the uplands; rights-of way crossing the area; and recreation use, particularly off-highway vehicles. All authorized activities which occur on BLM land can also take place on state and private land.

Many of the actions which could contribute to cumulative impacts have occurred over many years. Impacts from open-range livestock grazing in the last century are still being addressed today. Oil and gas activities began in the early part of the 20th century. These activities are still occurring today, and are expected to continue into the foreseeable future to some degree.

If the No-Grazing Alternative were chosen, some adverse cumulative impacts on groundwater resources would be eliminated, but others would occur. Grazing would no longer be available as a vegetation management tool, and BLM lands within the allotments would be less intensively managed.

Mitigation Measures and Residual Impacts

A rangeland health assessment has been completed and the allotments meet the Standards for Public Land Health. Rangeland monitoring would help ensure that adequate vegetation cover is maintained to protect the soil from erosion which would decrease dust levels resulting from allotment management activities.

3.2 Archaeology

➤ Cultural and Historical Resource

Affected Environment

The allotments fall within the Southeastern New Mexico Archaeological Region. This region contains the following cultural/temporal periods: Paleoindian (ca. 12,000-8,000 B.C.), Archaic (ca. 8000 B.C. –A.D. 950), Ceramic (ca. A.D. 600-1540) Protohistoric and Spanish Colonial (ca. A.D. 1400-1821), and Mexican and American Historical (ca. A.D. 1822 to early 20th century). Sites representing any or all of these periods are known to occur within the region. A more complete discussion can be found in *Living on the Land: 11,000 Years of Human Adaptation in Southeastern New Mexico; An Overview of Cultural Resources in the Roswell District*, Bureau of Land Management published in 1989 by the U.S. Department of the Interior, Bureau of Land Management.

Concerning cultural resources, grazing has the potential for impacts. The Roswell Field Office reviews the local office and New Mexico Cultural Resources Information System (NMCRIS) databases for every grazing permit or leasing action at all levels of NEPA. The following table summarizes the sites and surveys within each allotment:

Allotment #	# of Surveys	# of Sites
61006	4	1
61007	2	0
61008	10+	1
65010	2	0
65011	3	1
65012	7+	4

Impacts from the No Action Alternative - Direct and Indirect Impacts

Using the amount of surveys and sites as a representative sample for distribution within the allotment, impacts to cultural resources are not anticipated.

Impacts from the No Grazing Action - Direct and Indirect Impacts

There will be no impacts to cultural resources if the No Grazing Action alternative is selected; however, cultural resource inventories will be required for any new fence line construction.

Impacts from the Preferred Action - Direct and Indirect Impacts

Using the amount of surveys and sites as a representative sample for distribution within the allotment, impacts to cultural resources are not anticipated.

Cumulative Impacts of all Alternatives

Cultural resources are not usually adversely affected by livestock grazing, although concentrated livestock activity, such as, around livestock water troughs can have the potential to adversely affect cultural resources; however, a review of locational data does not illustrate any cultural resources near troughs.

Mitigation Measures and Residual Impacts

There are no mitigation measures or residual impacts at this time.

➤ Native American Religious Concerns

Affected Environment

Native American groups may have places that can be described as Traditional Cultural Properties (TCPs) or sacred sites that are important to their religions or cultures. The BLM uses the New Mexico Department of Cultural Affairs list of tribes/nations/pueblos concerned for individual counties to determine which of these groups may have concerns for the area. Additionally, the BLM conducts tribal consultation for many projects while preparing planning documents, such as, the Resource Management

Plan and Resource Management Plan Addendums. To date, the areas to be affected have not been identified by interested tribes as being of tribal concern.

Impacts from the No Action Alternative - Direct and Indirect Impacts

Based on a review of BLM's existing information, there will be no impacts.

Impacts from the No Grazing Action - Direct and Indirect Impacts

Based on a review of BLM's existing information, there will be no impacts.

Impacts from the Preferred Action - Direct and Indirect Impacts

Based on a review of BLM's existing information, there will be no impacts.

Cumulative Impacts of all Alternatives

Based on a review of BLM's existing information, there will be no cumulative impacts.

Mitigation Measures and Residual Impacts

There are no mitigation measures or residual impacts at this time.

3.4 Range

➤ Vegetation

Affected Environment

The allotments are comprised of two major vegetation community types arranged in a mosaic over the allotments. Mixed grasslands with interspersed shrubs and half shrubs; and grassland savannah communities dominate. Perennial and annual forb production fluctuates widely from year to year. General objectives or guidelines for each vegetation community are described in the Roswell Approved RMP and Record of Decision (BLM 1997) and the Roswell Draft RMP/EIS (BLM 1994). The major community types are Shinnery Oak Dune and Grassland Community with inclusions of the Mixed Desert Shrub Community and the Draws, Drainages and Canyons Community.

The Shinnery Oak Dune is a unique community type found primarily below the Llano Estacado, or Staked Plains, in an area known as Mescalero Sands. It lies in the southern desert plains ecosystem between the elevations of 4,100 feet and 4,300 feet. The topography can be described as gently sloping and undulating sandy plains, with moderate to very steep hummocky dunes of up to ten feet and more in height scattered throughout the area. Some of the dunes are stabilized with vegetation, while a number of them are unstable and shifting. Dune blowouts with shinnery oak and bluestem, either isolated or in dune complexes, are characteristic of the sand country.

The aspect vegetation is shinnery oak and bluestem. The deep sand community is a unique ecological area dominated by tall and mid grasses in a shortgrass ecosystem. The southern desert plains is characterized by such grasses as black grama, tobosa or galleta, and dropseed, but due to the sandy medium that occurs throughout the shinnery oak community, the dominant grasses are sand bluestem, little bluestem and three awn.

In many areas, the shinnery oak community has shifted from a dominant sand bluestem/little bluestem/hairy grama grassland with varying amounts of shinnery oak, sand sage and yucca. Composition is now dominated by sand dropseed, red and purple three awn and hairy grama, with increasing annual forbs, shinnery oak mesquite, sand sage and yucca.

The primary consideration in listing range sites under this community type is the flat to moderately rolling topography with 75 percent and higher composition of grasses in the description of potential plant community.

Grassland is the climax vegetative aspect for large portions of the resource area. The grassland community type is the most widespread. It can be further subdivided into grass rolling upland, grass hill, grass flat, and mesquite grassland subtypes, depending on topographic relief or seral stage. In many areas the subtypes may overlap. For the purpose of the RMP, the subtypes are grouped into the grassland community type. Vegetation is primarily dominated by warm season short- and midgrasses. Large areas of grassland climax communities have dropped in successional stage due to misuse and have become a dis-climax mixed shrub community.

The grass rolling uplands is the predominant shortgrass habitat subtype in the resource area. It is found on broad, nearly level or gently undulating plains to rolling hills at elevations between 3800 feet to 5000 feet. Slopes are 0 to 9 percent. Vegetation is dominated by blue grama, black grama, galleta, tobosa, sideoats grama, dropseeds, muhlys, threeawns, burrograss and fluffgrass.

Woody shrub species are scarce but include mesquite, fourwing saltbush, wolfberry, sumac, and cactus species such as yucca and cholla. Invasions of broom snakeweed, a halfshrub, is common in some areas. Forbs are a minor component of the subtype except following periods of rainfall. Ground cover may be too sparse in much of this subtype to provide the cover requirements of certain small mammals or ground-nesting birds.

Grass hills are found primarily on hills, low mountains, or lower foot slopes of higher mountains. Slopes are rolling to steep and average about 25 percent. Elevations range from 4500 feet to 6000 feet. Short- and mid-grasses dominate this subtype, including hairy grama, fluffgrass, three-awn, and red lovegrass. Shrubs, halfshrubs and cacti include little leaf sumac, beargrass, ocotillo, hedgehog cactus, cholla and broom snakeweed. The structured diversity of the vegetation in this subtype provides more diverse bird nesting habitat than adjacent grasslands. This is the preferred habitat for mule deer, which also use the brushy draws for browse and cover.

The grass flats subtype occurs on nearly level to gently sloping upland plains as broad swales between uplands, or as isolated pockets in shallow depressions, playas, along drainages or in sinks. These areas receive significant runoff from adjacent sites, which produces more dense and taller vegetation. Vegetation is dominated by mid- and tall-grasses with occasional shrubs or half shrubs. The primary grasses are tobosa and galleta, which may occur on large expanses between upland sites, and alkali and giant sacaton, which usually are found along drainages or in depressions. Shrubs sparsely associated

with the sacaton type are mesquite and fourwing saltbush. A few scattered yuccas or cholla may be interspersed in the tobosa swales. Forb diversity and abundance is low due to the density of the grass cover.

The mesquite grassland type could best be described as a dis-climax stage in a desert shortgrass climax. The mesquite invasion results from disturbance of natural successional processes. The type is generally located between the grassy plains and the Pecos River, including the breaks adjacent to the floodplain. Terrain is level to gently undulating with slopes generally less than 5 percent, or hummocky with numerous sand dunes scattered throughout the area. The elevation varies from 3,000 feet to 6,000 feet.

Mesquite is found on most soil types, but the main invasion occurs on sandy soils. The predominant shrub is honey mesquite, which has invaded what at one time was a shortgrass dominated type. Few other shrub species are associated with mesquite, although some creosote, yucca and Opuntia occur. Vegetation is dominated by black gama, blue grama, dropseed, muhly, tobosa and galleta, fluffgrass, and alkali sacaton on undulating terrain, with higher percentages of dropseed, three-awn and muhly on sandy sites. Halfshrubs include sand sage and broom snakeweed. Forbs may be abundant following periods of rainfall.

Grasslands is the most widespread of the community types found in the resource area. Approximately 30 percent (149) of the wildlife species found in the resource area use this community type.

The Rangeland Health assessment notes some invasive plants, most notably mesquite with scattered pockets of yucca. The Rangeland Health assessment for the allotment can be viewed at the Roswell Field Office. Rangeland monitoring studies have been established in key areas within the allotments. These permanent sites are used to track vegetation changes and to determine proper stocking rates. Table 3 below lists the key areas, identified by the vegetation ID number, within each allotment as well as the ecological site associated with each key area. These permanent sites are used to track vegetation changes and to determine proper stocking rates.

Table 3. Key Areas		
ALLOTMENT NAME and NUMBER <i>Pasture Name</i>	KEY AREA	ECOLOGICAL SITE
Fritz Place, 61006		
<i>Fritz South</i>	1103	Loamy Sand HP-3
Chaveroo, 61007		
<i>Chaveroo Southwest</i>	1104	Loamy Sand HP-3
Gallina Wells, 61008		
<i>Gallina Wells, Ten</i>	1105	Loamy Sand HP-3
<i>Gallina Wells, Fourteen</i>	1087	Sandy CP-4
Three Wells, 65010		
<i>North 3 Wells</i>	288	Sandhills CP-2
<i>South 3 Wells</i>	289	Sandhills CP-2
Salt Lake, 65011		
<i>Salt Lake One</i>	193	Sandhills CP-2
<i>Salt Lake Five</i>	195	Sandy Loam CP-2
Barringer Tank		
<i>Barringer Tank, North Kelly</i>	291	Sandy Plains CP-2
<i>Barringer Tank, Middle Ownby</i>	290	Sandhills CP-2
<i>Barringer Tank, Little Savage</i>	293	Sandhills CP-2
<i>Barringer Tank, Big Savage</i>	294	Sandy Plains CP-2

The description for these ecological sites was developed by the Soil Conservation Service (now referred to as the Natural Resource Conservation Service) in their ecological site guides. Ecological site descriptions are available for review at the Roswell BLM office, any Natural Resources Conservation Service office or accessed at www.nm.nrcs.usda.gov.

From 1978 to current times agencies are using the traditional range condition methodology to depict range condition. This compared collected rangeland monitoring information with the potential vegetation community in terms of species composition by weight. The rating is based on a scaled of 0 to 100 with 100 being the actual representative site. Rangeland Health Assessment data was collected in fiscal year 2014 & 2015. Analysis of the rangeland health assessments indicates that all three indicators (biotic, hydrology, and soils) have been met for the allotments.

Impacts from the No Action Alternative - Direct and Indirect Impacts

Under Alternative A (No Action Alternative) and Alternative C (Preferred Alternative), the vegetation in the Shinnery Oak Dune and the Grassland community will continue to be grazed and trampled by domestic livestock as well as other herbivores. The area has been grazed by livestock since the early part of the 1900's, if not longer. Ecological condition and trend is expected to remain stable and/or improve over the long term at the permitted number of livestock.

Upland sites would reflect a static ecological condition trend at the existing permit level. Some grassland areas would remain static due to the influence of creosote, mesquite and yucca. In the long term creosote or mesquite treatments may be necessary to ebb the encroachment onto historical grassland sites.

Range monitoring data indicate that the vegetation is sustainable to meet multiple resource requirements and forage at the permitted use level under the Alternative A. Data indicate that livestock grazing is compatible with vegetation cover and composition objectives. In addition to the static trend in ecological condition, monitoring data show the vegetative resources have been maintained and sustained since monitoring began in 1981.

Impacts from the No Grazing Action - Direct and Indirect Impacts

Under the No-Grazing Alternative (Alternative B), no impacts to vegetation resources would occur on public lands from authorized livestock grazing. Vegetation cover would increase over the long term in some areas. Grasslands in the uplands would increase in cover and composition, but composition would be tempered by creosote or mesquite somewhat dominating the shrub component. Spike dropseed would, in the short term, increase in cover and composition but would then taper off in the long term, becoming decadent from the lack of standing vegetation removal by grazing.

Cumulative Impacts of all Alternatives

The incremental impact of issuing a grazing lease on these resources must be analyzed in the context of impacts from other actions. Other BLM actions that could have impacts on the identified resources include: livestock authorization on other allotments in this area; oil and gas activities on the uplands; rights-of-way crossing the area; and recreation use, particularly off-highway vehicles. All authorized activities which occur on BLM land can also take place on state and private land.

Many of the actions which could contribute to cumulative impacts have occurred over many years. Impacts from open-range livestock grazing in the last century are still being addressed today. Cattle grazing combined with drought conditions will continue to decrease native vegetation root structure increasing soil erosion and loss of wildlife habitat. These activities are still occurring today, and are expected to continue into the foreseeable future to some degree. The analysis of cumulative impacts is driven by major resource issues. The proposed action is the authorization of livestock grazing on these allotments. The cumulative impacts to these allotments and adjacent allotments are insignificant.

Mitigation Measures and Residual Impacts

Vegetation monitoring studies will continue if new grazing leases were issued under the Preferred Action. Changes to livestock management would be made if monitoring data showed adverse impacts to the vegetation.

➤ Livestock Grazing

Affected Environment

In the past, these allotments have been permitted to be grazed yearlong by cattle. Generally there are only enough horses authorized to work stock. The leases authorized 185 Animal Units (AUs) on public land. This is the equivalent of 10 head per section.

The allotments contain about 11,723 acres of public land (see Location Map) and 58,961 acres of private and state land. Public landownership is intermingled with private and state land. Current range improvement projects for the management of livestock include earthen tanks, wells, and several drinking troughs with associated pipelines, pasture and boundary fences and corrals.

Impacts from the No Action Alternative - Direct and Indirect Impacts

Under Alternative A, No Action Alternative, livestock would continue to graze public lands within the allotments. Existing pasture configurations and water developments would remain the same. Livestock management would still follow the single-herd rotation system or in dry conditions would be scattered across the allotments.

Impacts from the No Grazing Action - Direct and Indirect Impacts

Under No-Grazing Alternative, there would be no livestock grazing authorized on public lands. The public lands would have to be fenced apart from the private lands or livestock would be considered in trespass if found grazing on public land (43 CFR 4140.1(b)(1)). Exclusion of livestock from the public land would require approximately 58.35 miles of new fence at an approximate cost of \$262,575.00 (\$4,500/mile). This expense would be borne by the private landowners. Range improvements on public land would not be maintained and the BLM would have to compensate the permittee/lessee if any of the improvements were cost shared at the time of their authorization.

Under No-Grazing Alternative, the overall livestock operation could be reduced by 185 AUs (those attached to the public lands). This would have an adverse economic impact on the lessee and Chaves County and Roosevelt County would lose the tax revenue for the stock associated with the public lands.

Impacts from the Preferred Action - Direct and Indirect Impacts

Under Alternative C, (Preferred Alternative), livestock would continue to graze public lands within the allotments. Existing pasture configurations and water developments would remain the same. Livestock management would still follow the single-herd rotation system or in dry conditions would be scattered across Allotments 61006, 61007 and 61008. Allotment 65110 would have one management unit, the Three Wells Unit, in which the number of livestock would be limited. The other two units would still continue to support a varying number of stock; the allottee would still have a wide range of flexibility in livestock numbers. A Cooperative Management Plan could be developed for the Three Wells Management Unit, which might include a livestock rotation plan, range improvement development for water distribution or vegetation treatment. If a Cooperative Management Plan were to be developed

with structural improvements, an Environmental Assessment would also be developed at that time to address those impacts.

Cumulative Impacts of all Alternatives

The incremental impact of issuing a grazing leases on these resources must be analyzed in the context of impacts from other actions. Other BLM actions that could have impacts on the identified resources include: livestock authorization on other allotments in the area, oil and gas activities on the uplands, rights-of-way crossing the area and recreational use, particularly off-highway vehicles. All authorized activities which occur on BLM land can also take place on state or private lands.

Many of the actions which could contribute to cumulative impacts have occurred over many years. Impacts from open-range livestock grazing in the last century are still being addressed today. Oil and gas activity began in the early part of the 20th century. These activities are still occurring today, and are expected to continue into the foreseeable future.

The analysis of cumulative impacts is driven by major resource issues. The proposed actions (both the No Action Alternative and the Preferred Action Alternative is the authorization of livestock grazing on these allotments. The cumulative impacts to these allotments and adjacent allotments are insignificant.

Mitigation Measures and Residual Impacts

If new information surfaces that livestock grazing is negatively impacting other resources, action will be taken at that time to migrate those impacts.

Cumulative impacts of the grazing and no grazing alternatives were analyzed in Rangeland Reform '94 Draft Environmental Impact Statement (BLM and USDA Forest Service 1994) and in the Roswell Resource Area Draft RMP/EIS (BLM 1994). The "no livestock grazing alternative" was not selected in either document. If the No Grazing Alternative were chosen, some adverse cumulative impacts would be eliminated, but other would occur. Grazing would be no longer available as a vegetative management tool, and BLM lands within the allotments would be less intensively managed.

Residual impacts are direct, indirect or cumulative impacts that would remain after applying the mitigation measures. Residual impacts following authorizing livestock grazing would be insignificant if the mitigation measures are properly applied.

➤ Invasive, Non-Native Species

Affected Environment

Potential noxious weed species include African rue and Russian knapweed. There are not any known populations of noxious weeds on this allotment. Depending on source information African rue was introduced to the resource area from either Pecos, Texas or Deming, New Mexico. The plant generally shows up in areas with heavy oil and gas operations, where vehicles have passed from an infested site, and have traveled into new areas of disturbance; or have come into an area from contaminated feed for

livestock. Once established, the plant spreads via seed and roots. Livestock will avoid utilizing the plant, but will if other feed is not readily available. Unfortunately, if they consume the plant, they will die in short order, as the plant and all of its parts are highly toxic. This plant is also toxic to humans. Recent research shows that if aggressively treated, in the fall and again in the spring with the appropriate herbicide, control can be achieved. Follow up monitoring, and if necessary, treatments, are required to restrict and eliminate the pest plant.

Russian knapweed came into the Roswell Field area, apparently from contaminated feed and spread along US Highway 380, extending from east of the Pecos River to west of the Border Hills, on the west side of Chaves County. The New Mexico Highway Department has very aggressively treated any populations, with very effective results. The population has been eliminated over most of the infested areas. Any new populations which are discovered are rapidly treated. Again, this plant is usually found on disturbed sites.

Impacts from the No Action Alternative and the Preferred Alternative - Direct and Indirect Impacts

Noxious weeds affect both crops and native plant species in the same way, by out-competing for light, water and soil nutrients. Losses are attributed to decreased quality and quantity of agricultural products due to high levels of competition from noxious weeds and infestations. Noxious weeds can negatively affect livestock productivity by making forage unpalatable to livestock thus decreasing livestock productivity and potentially increasing producer's feed costs.

Impacts from the No Grazing Action - Direct and Indirect Impacts

While the vector of livestock would be removed under this alternative, noxious weed populations would still have the potential to become established, generally through vehicular traffic or seed movement carried by wildlife, wind or dust. Once established, noxious weeds would compete with the vegetation, reducing the habitat for wildlife.

Cumulative Impacts of all Alternatives

Infestations of noxious weeds can have a potentially disastrous impact on biodiversity and natural ecosystems. In order to combat the negative effects of noxious weeds on crop lands, grazing lands and waterways, herbicidal and other weed control strategies can be implemented at further costs to producers and government agencies. Such costs would then likely be passed down to consumers, who would pay more for products due to increased producer costs.

Mitigation Measures and Residual Impacts

A rangeland health assessment has been completed and the allotment meets the *Standards for Public Land Health*. Continued rangeland monitoring would help ensure that adequate vegetation cover is maintained and that any noxious weed populations are noted, mapped and treated to reduce or eliminate the population.

3.5 Wildlife Biology

This section ties in with the Vegetation section above as it provides information that helps describe wildlife and wildlife habitat for the allotment. The allotments are located in eastern Chaves County in a geomorphologically unique area that shapes wildlife habitat and diversity of wildlife species that utilize the area. It is located below a major ecotonal division defined by the Cap rock, the dominant geological feature rising to the east of the allotment. It is part of an expansive area known as Mescalero Sands with its mosaic of Shinnery Oak Dune and Mixed Desert Shrub plant communities. It is a small allotment but well-blocked public land with no pasture fences. Livestock grazing and oil and gas development has been the dominant land use for many decades. Key wildlife species of concern include the lesser prairie chicken and Dunes sagebrush lizard which are described in more detail under Threatened and Endangered Species and Special Status Species, respectively.

➤ Wildlife

Affected Environment

The key habitat type is the Shinnery Oak/Bluestem community. Two wildlife species concerns are within this habitat type with discussions in the following sections. For the most part, the area where the allotments lie are relatively undisturbed primarily because of the difficulty in traveling across deep sandy areas and open dunes characteristic of the area. Some development for oil and gas has occurred and rights-of-way for buried pipelines are prominent visual features but not at a level of density as with full lease development. Range improvements are scarce and water developments are limited due to the difficulty in constructing and maintaining facilities such as pipelines and fences. Water is a limiting factor in this environment along with encroaching mesquite.

A mosaic of vegetated and un-vegetated dunes can be found along with influences of other surrounding habitat types such as the Mixed Desert Shrub and DDC plant communities. Key habitat components for wildlife species of concern are found below.

In general, for the size of the allotments, it provides a variety of habitat types for terrestrial and avifaunal wildlife species. The diversity and abundance of wildlife species in the area is due to the presence of a mixture of shinnery oak and tall grasses, mixed desert shrub, drainage and draws habitat, and shortgrass prairie types.

Numerous avian species use the area during spring and fall migration, including non-game migratory birds. Common bird species are mourning dove, mockingbird, white-crowned sparrow, black-throated sparrow, blue grosbeak, northern oriole, western meadowlark, Cristal thrasher, western kingbird, northern flicker, common nighthawk, loggerhead shrike, and roadrunner. Raptors include northern harrier, Swainson's hawk, American kestrel, and occasionally golden eagle and ferruginous hawk, greathorned owl, burrowing owl and barn owl.

Common mammal species using the area include desert mule deer, pronghorn antelope, coyote, gray fox, bobcat, striped skunk, porcupine, raccoon, badger, jackrabbit, cottontail, white-footed mouse, deer mouse, grasshopper mouse, kangaroo rat, spotted ground squirrel, woodrat, Mexican Free-tailed bat, Townsend's Western Big-eared bat.

A variety of herptiles also occur in the area such as yellow mud turtle, box turtle, eastern fence lizard, side-blotched lizard, horned lizard, whiptail, hognose snake, coachwhip, gopher snake, rattlesnake, and spadefoot toad.

Impacts from the No Action Alternative - Direct and Indirect Impacts

Under the Alternative A, No Action Alternative, livestock grazing management and range improvement projects designed with consideration for wildlife may generally enhance the quality of wildlife habitat. The larger blocks of public land with legal public access could lend themselves to specific wildlife objectives and projects that could be incorporated into the grazing management operation.

Vegetation condition, forage production, and habitat diversity may improve, and wildlife species distribution and abundance may remain static or possibly increase depending on the grazing management regime. The construction of livestock waters in previously un-watered areas would promote increased wildlife distribution and abundance, but may potentially increase grazing pressure in those same areas. Short-term impacts of range improvement projects would be the temporary displacement of wildlife species during possible range improvement construction activities.

Impacts from the No Grazing Action - Direct and Indirect Impacts

Under the No-Grazing Alternative, there would no longer be direct competition between livestock and wildlife for forage, browse and cover. Wildlife habitat would moderately improve. The limitation for improvement would continue to be the inability to control livestock use of the parcels because of the expense of segregating the lands with fencing, and legal access to administer isolated parcels of public land. Since livestock grazing would not be permitted, range improvement projects that benefit wildlife, such as water developments, would be abandoned. New range improvement projects that would also benefit wildlife habitat, such as brush control, may not be implemented because these projects are primarily driven and funded through range improvement efforts.

Impacts from the Preferred Action - Direct and Indirect Impacts

Under the Preferred Action Alternative, livestock grazing management and range improvement projects designed with consideration for wildlife may generally enhance the quality of wildlife habitat. The larger blocks of public land with legal public access could lend themselves to specific wildlife objectives and projects that could be incorporated into the grazing management operation.

Vegetation condition, forage production, and habitat diversity may improve, and wildlife species distribution and abundance may remain static or possibly increase depending on the grazing management regime. The construction of livestock waters in previously un-watered areas would promote increased wildlife distribution and abundance, but may potentially increase grazing pressure in those same areas. Short-term impacts of range improvement projects would be the temporary displacement of wildlife species during possible range improvement construction activities.

Cumulative Impacts of all Alternatives

The majority of land in this area is currently grazed by livestock, continuing a tradition and way of life that has been going on for at least 100 years. Authorizing livestock grazing on these allotments contributes to the overall cumulative impact of livestock grazing in the region but is diluted by the fact that this practice is historic use with vegetation changes having already shifted by livestock grazing and vegetation manipulation. With proper grazing management which considers wildlife needs, and maintenance of plant communities that support the variety of wildlife in the area, it is expected to be a positive cumulative impacts contribution of improving the condition of habitat through proper management. As livestock grazing is the predominant land use over the landscape, most cumulative effects are added to this existing use.

Mitigation Measures and Residual Impacts

See Mitigation Measures below which encompass primary wildlife and habitat concerns associated with the proposed actions.

➤ Threatened or Endangered Species

On December 11, 2012 the USFWS proposed to list the lesser prairie-chicken as a threatened species under the ESA of 1973, as amended. The final rule to list the lesser prairie-chicken as threatened was published in the Federal Register on April 10, 2014, and was effective as of May 12, 2014.

Under Section 7 of the Endangered Species Act of 1973 (as amended), BLM is required to consult with the U.S. Fish and Wildlife Service on any proposed action which may affect Federal listed threatened or endangered species or species proposed for listing. The Roswell Field Office wildlife biologist reviewed and determined the proposed actions are in compliance with the Biological Assessment by the Fish and Wildlife Service. The conservation measures in the Biological Assessment, Consultation #02ENNM00-2015-I-0175, are being implemented on the allotment.

Affected Environment

Lesser Prairie-Chicken (*Tympanuchus pallidicinctus*) Federally Listed Species – Threatened

In New Mexico, the lesser prairie-chicken (LPC) formerly occupied a range that encompassed the easternmost one-third of the state, extending to the Pecos River, and 28 miles west of the Pecos near Fort Sumner. This covered about 15,000 mi². By the beginning of the 20th Century, populations still existed in nine eastern counties (Union, Harding, Chaves, De Baca, Quay, Curry, Roosevelt, Lea, and Eddy). The last reliable records from Union County are from 1993. Currently, populations exist only in parts of Lea, Eddy, Curry, Chaves, and Roosevelt counties, comprising about 23 percent of the historical range.

LPC are found throughout dry grasslands that contained shinnery oak or sand sage. Currently, they most commonly are found in sandy-soiled, mixed-grass vegetation, sometimes with short-grass habitats with clayey or loamy soils interspersed. They occasionally are found in farmland and smaller fields, especially in winter. Shinnery oak shoots are used as cover and produce acorns, which are important food for LPC and many other species of birds, such as the scaled quail, northern bobwhite, and mourning dove. Current geographic range of shinnery oak is nearly congruent with that of the lesser prairie-chicken, and these species sometimes are considered ecological partners. Population densities of LPC are greater in shinnery oak habitat than in sand sage habitat.

LPC use a breeding system in which males form display groups. These groups perform mating displays on arenas called leks. During mating displays male vocalizations called booming, attract females to the lek. Leks are often on knolls, ridges, or other raised areas, but in New Mexico leks are just as likely to be on flat areas such as roads, abandoned oil drill pads, dry playa lakes or at the center of wide, shallow depressions. Leks may be completely bare, covered with short grass, or have scattered clumps of grass or short tufts of plants. An important physical requirement for location of leks is visibility of surroundings, but the most important consideration is proximity of suitable nesting habitat, breeding females and the ability to hear male vocalizations.

No leks have been discovered on the allotment to date although one known lek sites is about 2.5 miles northwest of the allotment. The lek was not active in the 2014 survey year. A three-mile buffer around known leks would include a small portion of the allotment. It is possible that LPC could utilize about 185 acres of the northwest portion of the allotment that is primarily shinnery oak/sand dune habitat invaded by mesquite. Lek surveys would continue in the area in the future to determine presence/absence.

Impacts from the No Action Alternative

Direct and Indirect Impacts

Lesser prairie-chicken

Grazing is one of the dominant land uses on public and private lands throughout the range of LPCs. The evolutionary history of the mixed-grass prairie resulted in endemic bird species adapted to a mosaic of lightly to heavily grazed areas (Bragg and Steuter 1996; Knopf and Samson 1997). In some areas within LPC range where heavy grazing has removed tallgrass and midgrass cover, insufficient amount of lightly grazed habitat is available to support successful nesting (Jackson and DeArment 1963; Davis et al. 1979; Crawford 1980; Taylor and Guthery 1980; Davies 1992). Uniform or widespread livestock grazing of rangeland, to a degree that leaves less than adequate residual cover remaining in the spring, is considered detrimental to LPC populations because grass height is reduced below that necessary for secure nesting cover and desirable food plants are markedly reduced (Bent 1932; Davis et al. 1979; Crawford 1980; Bidwell and Peoples 1991; Riley et al. 1992; Giesen 1994b). Residual cover at and around nests is thought to increase nest success because the nest is better concealed from predators (Davis et al. 1979; Wisdom 1980; Riley et al. 1992; Giesen 1994b).

The impacts of grazing on LPC habitat can vary widely, depending on climatic conditions, the state or health of range vegetation, and the type of grazing regime utilized. Drought tends to magnify grazing impacts, as both processes reduce plant cover (Giesen 2000). When forage is reduced by drought, what remains tends to be grazed more heavily unless animal numbers are reduced. As a result, some grazed areas may supply adequate habitat during periods of normal rainfall, but may be unable to support LPCs

during periods of drought (Merchant 1982). Intensive and/or persistent grazing may reduce or eliminate residual tallgrass cover needed for nesting (Davis et al. 1979; Riley et al. 1992). Heavy grazing that repeatedly interrupts plant succession over a broad area may result in the conversion of tallgrass prairie to shortgrass or forb-dominated habitat (Hoffman 1963; Jackson and DeArment 1963; Litton et al. 1994) or shrub-dominated landscapes.

Suitable habitat for LPCs has been lost due to conversion to agriculture and modified through grazing practices and other factors, such that remaining suitable habitat is increasingly fragmented and isolated (Crawford 1980; Braun et al. 1994). Fragmentation may threaten local LPC populations through several mechanisms: habitat juxtaposition and remaining patches of rangeland may be smaller than necessary to support populations (Samson 1980); necessary habitat heterogeneity may be lost; habitat between patches may accommodate high densities of predators; and ability to move and/or disperse among suitable patches of habitat may decrease (Wilcove et al. 1986; Knopf 1996).

The U.S. Fish and Wildlife Service final listing decision states that chronic intensive grazing is detrimental to plants and can be addressed by rest and deferment (periodic cessation of grazing), particularly during growing season when plant growth is often rapid. Many effects of overgrazing and overutilization on habitat quality are similar to effects produced by drought and likely are exacerbated by actual drought conditions (Davis et al. 1979, p.122; Merchant 1982, pp.31-33). However, when appropriately managed, livestock grazing can reduce grass density to facilitate movements of broods and enhance the production and diversity of forbs that provide insects particularly important to the diet of chicks.

Under this action there would be no controlled grazing on the Three Wells Allotment where LPC are active.

Impacts from the No Grazing Action - Direct and Indirect Impacts

LPC may benefit initially from grasses being rested but overtime could be impacted from grasses becoming decadent. Also, grasses could become so thick that LPC chicks would not be able to maneuver as needed. Soil disturbance from cattle trampling can increase forb production which is beneficial to LPC. If no cattle were on this allotment year round open water provided by the allottee would no longer be available for LPC.

Impacts from the Preferred Action - Direct and Indirect Impacts

Grazing is one of the dominant land uses on public and private lands throughout the range of LPCs. The evolutionary history of the mixed-grass prairie resulted in endemic bird species adapted to a mosaic of lightly to heavily grazed areas (Bragg and Steuter 1996; Knopf and Samson 1997). In some areas within LPC range where heavy grazing has removed tallgrass and midgrass cover, insufficient amount of lightly grazed habitat is available to support successful nesting (Jackson and DeArment 1963; Davis et al. 1979; Crawford 1980; Taylor and Guthery 1980; Davies 1992). Uniform or widespread livestock grazing of rangeland, to a degree that leaves less than adequate residual cover remaining in the spring, is considered detrimental to LPC populations because grass height is reduced below that necessary for secure nesting cover and desirable food plants are markedly reduced (Bent 1932; Davis et al. 1979; Crawford 1980; Bidwell and Peoples 1991; Riley et al. 1992; Giesen 1994b). Residual cover at and around nests is thought to increase nest success because the nest is better concealed from predators (Davis et al. 1979; Wisdom 1980; Riley et al. 1992; Giesen 1994b).

The impacts of grazing on LPC habitat can vary widely, depending on climatic conditions, the state or health of range vegetation, and the type of grazing regime utilized. Drought tends to magnify grazing impacts, as both processes reduce plant cover (Giesen 2000). When forage is reduced by drought, what remains tends to be grazed more heavily unless animal numbers are reduced. As a result, some grazed areas may supply adequate habitat during periods of normal rainfall, but may be unable to support LPCs during periods of drought (Merchant 1982). Intensive and/or persistent grazing may reduce or eliminate residual tallgrass cover needed for nesting (Davis et al. 1979; Riley et al. 1992). Heavy grazing that repeatedly interrupts plant succession over a broad area may result in the conversion of tallgrass prairie to shortgrass or forb-dominated habitat (Hoffman 1963; Jackson and DeArment 1963; Litton et al. 1994) or shrub-dominated landscapes.

Suitable habitat for LPCs has been lost due to conversion to agriculture and modified through grazing practices and other factors, such that remaining suitable habitat is increasingly fragmented and isolated (Crawford 1980; Braun et al. 1994). Fragmentation may threaten local LPC populations through several mechanisms: habitat juxtaposition and remaining patches of rangeland may be smaller than necessary to support populations (Samson 1980); necessary habitat heterogeneity may be lost; habitat between patches may accommodate high densities of predators; and ability to move and/or disperse among suitable patches of habitat may decrease (Wilcove et al. 1986; Knopf 1996). Under this action controlled grazing would apply to the Three Wells Allotment where LPC are active.

Cumulative Impacts of All Alternatives

Cumulative impacts from overgrazing and overutilization in this area could have a negative impact on LPC if standards and guidelines are not met.

Mitigation Measures and Residual Impacts

The goal of the Bureau of Land Management (BLM), and the applicant is to reduce and/or eliminate threats to the LPC and/ or DSL. In addition to the conservation/management actions described below and specific to the allotment described herein, the applicant agrees to the following conservation actions:

- a) Improve or maintain conservation lands as suitable LPC and/or DSL habitat for the duration of the grazing permit. Technical assistance is available from the Natural Resources Conservation Service (NRCS) and FWS to develop plans to improve and maintain habitat for the LPC and/or DSL. Financial assistance for the implementation of these plans may be available through conservation programs of the U.S. Department of Agriculture's National Food Security Act of 1985, as amended (Farm Bill) and/or the FWS's Partners for Fish and Wildlife Program (PFW) depending on annual funding.
- b) Adhere to rangeland and grazing guidelines as described in the 2008 BLM Special Status Resource Management Plan Amendment at a minimum for ranch operations.
- c) Use herbicides for shinnery oak management only when habitat goals cannot be achieved by other means, including grazing system management.

- i. No herbicide treatments will be applied in dune complexes (NRCS sand hills ecological sites) and corridors between dune complexes. Maintain an application buffer around dune complexes of 100 meters (m) to ensure dunal stability.
 - ii. Prohibit tebuthiuron spraying within 500 m of DSL habitat. In addition, for DSL, prohibit spraying in dune complexes or within corridors, which connect dune complexes that are within 2000 m of each other. All application of tebuthiuron will be by a licensed applicator and in accordance with the New Mexico supplemental label for wildlife habitat.
 - iii. In conducting such treatments, the goal will be to temporarily reduce shinnery oak competition with grasses, allowing grass cover to increase naturally. Herbicides should be used at dosages that would set back (defoliate) shinnery oak, not kill it.
 - iv. Large block and linear application of herbicides will be avoided. Application should follow the natural patterns on the landscape such that only patches needing treatment are treated.
 - v. For LPC, herbicide treatment should not be applied around large oak motts or within 1.5 miles of active lek sites.
 - vi. Post-treatment grazing management is essential to success. Grazing by any livestock will be deferred during the growing season for at least the two consecutive years following treatment. If vegetation response to treatment has been hindered due to drought or other factors additional deferments to ensure success of the treatment may be required.
 - vii. Experimental treatments outside these guidelines may occur with the approval by FWS. Experimental treatments must be part of a quantitative research design to study vegetation response, viability of shinnery oak, drift, sub-surface spread, the interaction of herbicide treatment and/or grazing management and the response of LPC and DSL to various treatments.
- d) For livestock ranches, implement grazing management plans intended to move towards meeting specific habitat goals for the LPC and/or DSL as defined in the Collaborative Conservation Strategies for the Lesser Prairie-Chicken and Dunes Sagebrush Lizard in New Mexico (LPC/DSL Working Group 2005) on individual ranches. This may include adjustment of stocking rates, rest-rotation patterns, grazing intensity and duration, avoidance of nesting areas during nesting season, and contingency plans for varying prolonged weather patterns including drought.
- e) Avoid construction of new roads. If unavoidable, route and construct new roads, pipelines and power lines outside of occupied and suitable, unoccupied shinnery dune complexes as delineated by the FWS, BLM, and/or designees.
- f) Provide escape ramps in all open water sources and trenches for LPC and/or DSL. Any trenches dug on enrolled property will have escape ramps placed at the ends and approximately every 500 feet to allow for LPC/DSL escape. Trenches may alternatively be covered to avoid entrapment and should be inspected three times a day.
- g) Install fence makers along fences that cross through occupied habitat within 2 miles of an active lek. BLM, FWS, and CEHMM will help identify where the markers are needed and help plan the acquisition and installation of the markers.

- h) Initiate control of shinnery oak only after coordinating with and gaining approval from BLM and FWS concerning control procedures so they will not be detrimental to LPC and/or DSL.
- i) Provide information on annual basis to CEHMM on implementation of conservation commitment, observations of LPC/DSL on enrolled property, and any mortality of either species observed.
- j) Grazing by any livestock will be deferred during the growing season for at least the two consecutive years following vegetation treatment (e.g., mesquite spray). If vegetation response to treatment has been hindered due to drought or other factors additional deferments to ensure success of the treatment may be required.

Additional Conservation Measures

Management Actions and Benefits for Lesser Prairie Chicken Conservation

Management Actions

- Install escape ramps in all open water sources.
- Maintain current grazing practices to continue to benefit LPC and livestock operation.
- Reseed or inter-seed disturbed areas.
- Allow LPC surveys.
- Remove old power lines and associated power poles where rancher has control of power line.
- Reduce invasive brush (non-shinnery oak).

Benefits

- Provides wildlife opportunity to escape water trough and reduce accidental drowning
- Prevents suitable habitat becoming unsuitable and promotes LPC retention in occupied areas
- Increases suitability of historic habitat
- May allow consistent access to new survey areas previously inaccessible
- Removes predator perches
- Restores characteristics and ratios of the desired native plant communities

➤ Special Status Species

In accordance with BLM Manual 6840, BLM manages certain sensitive species not federally-listed as threatened or endangered in order to prevent or reduce the need to list them as threatened or endangered in the future. Included in this category are State-listed threatened or endangered species and federal candidate species which receive no special protections under the Endangered Species Act. A current list of State species and BLM sensitive species reviewed for this EA can be found on file at the Roswell Field Office which updates Appendix 11 of the Roswell Approved RMP (AP11- 3 & 4, respectively).

Affected Environment

Dunes Sagebrush Lizard (*Sceloporus arenicolus*)

State Listed Species – Endangered & Federal - Candidate Species

Conservation interests petitioned the USFWS to list the DSL as a threatened species under the Endangered Species Act. In 2001, the FWS ruled that such a listing was warranted, but precluded by the need to devote limited agency resources to other higher priority species. The species is currently considered a candidate species for listing. The 2008 Candidate Notice of Review retained the species at Listing Priority Number of 2, the highest priority ranking as a candidate species. On June 12, 2012 the USFWS, withdrew the proposed rule to list the dunes sagebrush lizard as endangered under the Endangered Species Act of 1973.

Dunes Sagebrush Lizard

The DSL is native to a small area of southeastern New Mexico and west Texas. A habitat specialist, the DSL only occurs in sand dune complexes associated with shinnery oak (Degenhardt et al. 1996), with areas often separated by large stretches of unsuitable habitat.

The DSL prefers active and semi-stabilized sand dunes associated with shinnery oak and scattered sandsage. The oaks provide dune structure, shelter, and habitat for the species' prey base. DSL are found in large dunes with deep, wind hollowed depressions called blowouts, where they remain under vegetation or loose sand during the hot part of the day and at night. These large, deep dunal blowouts (greater than 3 m deep and 32.9 m long) provide superior habitat with more area for cover (for thermoregulation and predator avoidance) and steeper slopes needed as breeding habitat. DSL avoid shallow blowouts.

DSL feed on ants, small beetles, crickets, grasshoppers, and spiders. Most feeding takes place within or adjacent to patches of vegetation, usually shinnery oak habitat. Individuals are diurnal and wary, and will seek protection and shelter in burrows, under the sand, beneath leaf litter, and under the shinnery oak canopy (BLM 2006). Within a dune complex, the shinnery flats between dune blowouts are used for movement by females seeking nesting sites and for dispersal of recent hatchlings (Painter 2007). Therefore, it is imperative that connectivity be considered across interdunal areas.

Within the geographic range of the species, habitat is localized and fragmented where known populations are separated by vast areas of unoccupied habitat. Fitzgerald et al. (1997) observed isolated areas of apparently suitable habitat that did not contain DSL. It is possible that these observations are the result of local extinction events in isolated areas where recolonization is either impossible or has not yet occurred (Snell et al. 1997). It is also possible that these areas have never been occupied and other factors such as competition with or predation by other species prevent DSL occupation in otherwise suitable habitat. Recent surveys by the BLM have reconfirmed the presence of DSL within the known geographic range of the species. The BLM has also developed a habitat predictability model to help redefine the parameters of the known geographic range.

Potential habitat for DSL has not been delineated on the allotment. No recorded sightings have been made to date although potential habitat exists. The primary delineated DSL habitat lies 1.2 miles to the west of the allotment. Additional presence/absence surveys would be conducted to include collection habitat predictability parameters in the future.

Impacts from the No Action Alternative - Direct and Indirect Impacts

Dunes Sagebrush Lizard

There are no known direct impacts to DSL from livestock grazing. However, domestic livestock and wildlife grazing practices that reduce the ability of the land to sustain long term plant and animal production (Smith et al. 1996) may lead to the loss of grassland cover, mortality of plant species, and increased erosion. Further, improper grazing practices and increased conversion of rangelands to agricultural production may lead to habitat fragmentation and loss by promoting conditions favorable for shrub encroachment and by increasing infrastructure development, such as roads, drinkers, windmills, water pipelines, and fences (Dinerstein et al. 2000). These land management activities are compounded by extended drought periods and altered hydrologic functions.

The Dunes Sagebrush Lizard was a focal species in the 2008 Pecos District Special Status Species Approved Resource Management Plan Amendment. Through the planning process, the USFWS supported BLM's determination of "may affect, not likely to affect" for DSL. The management prescriptions of the plan include vegetation management and livestock management (grazing) as addressed on pages 15-23 of the Amendment and further in Appendix 2.

Impacts from the No Grazing Action - Direct and Indirect Impacts

Under the no grazing alternative there could be impacts to DSL from grasses creeping into dune blowouts at high densities and reducing available habitat to DSL.

Impacts from the Preferred Action - Direct and Indirect Impacts

Under the preferred action DSL habitat could benefit from cattle not allowing grasses to creep into dune blowouts at high densities.

Cumulative Impacts of All Alternatives

There should be no cumulative impact to DSL as long as standards and guidelines are met.

Mitigation Measures and Residual Impacts

No herbicide treatments will be applied in dune complexes (NRCS Sandhills Ecological Sites) and corridors between dune complexes. Maintain an application buffer around dune complexes of 100 meters (330 feet) to ensure dunal stability.

Prohibit tebuthiuron spraying within 500 meters of DSL habitat. In addition, for DSL, prohibit spraying in dune complexes or within corridors, which connect dune complexes that are within 2000 meters (m) of

each other. All application of tebuthiuron will be by a licensed applicator and in accordance with the New Mexico supplemental label for wildlife habitat.

Remove unnecessary development (non-functioning powerlines, fences etc.) from dunes, as funding is available.

3.6 Recreation

Affected Environment

The allotment provides habitat for numerous game species including desert mule deer, pronghorn, mourning dove and scaled quail. Predator and feral pig hunting may occur on the allotment, as well as trapping for predators or furbearers. Off-highway vehicle use, wildlife viewing, and photography are non-consumptive recreational activities that may occur.

Impacts from the No Action Alternative - Direct and Indirect Impacts

Under Alternative A, game and non-game wildlife species would benefit in a long-term through habitat improvement. It is expected that hunter success and wildlife viewing opportunities would be enhanced. Concerning recreation, grazing has the potential for impacts. Currently, there is no evidence that grazing activities at this intensity have adversely impacted any recreational resources; however, unforeseen impacts may occur.

Impacts from the No Grazing Action - Direct and Indirect Impacts

Under No-Grazing Alternative, no conflicts between ranching activities and recreational use would occur on public lands. Success of hunts and non-consumptive opportunities would remain the same or slightly improve. Vandalism could still occur to range improvements. Conflicts with OHV may occur.

Impacts from the No Grazing Action - Direct and Indirect Impacts

There should be no direct or indirect impacts to recreational resources if a no grazing action is selected.

Impacts from the Preferred Action - Direct and Indirect Impacts

Based on a review of BLM's existing information, there will be no cumulative impacts.

Cumulative Impacts of all Alternatives

Recreation resources are not usually adversely affected by livestock grazing.

Mitigation Measures and Residual Impacts

At this intensity, there are no mitigation measures; however, in situations where the allottee or members of the public feel there is recreational conflict, site specific visits may be conducted to assess the presence of effects.

3.7 Visual Resources

Affected Environment

The setting presents an winter gray color pattern, and in warm months, with foliage, a gray to gray-green color pattern. Wide-area landscape tends to be horizontal in line and flat in form, with a smooth texture. The allotment is in a Class IV area for visual resources management. The proposed actions are located within a designated VRM Class IV area. The objective of Class IV is to: "Provide for management activities which require major modification of the existing landscape character...Every attempt, however, should be made to reduce or eliminate activity impacts through careful location, minimal disturbance, and repeating the basic landscape elements."

Impacts from the No Action Alternative - Direct and Indirect Impacts

The basic landscape elements of form, line color and texture would not change within the allotment under any management alternative. Potential impacts to visual resources would be analyzed and mitigated as allotment management activities are proposed in the future.

Impacts from the No Grazing Action - Direct and Indirect Impacts

The basic landscape elements of form, line color and texture would not change within the allotment under any management alternative. Potential impacts to visual resources would be analyzed and mitigated as allotment management activities are proposed in the future.

Impacts from the Preferred Action - Direct and Indirect Impacts

Cumulative Impacts of all Alternatives

Visual resources are not usually adversely affected by livestock grazing.

Mitigation Measures and Residual Impacts

At this intensity, there are no mitigation measures; however, in situations where the allottee or members of the public feel there is recreational conflict, site specific visits may be conducted to assess the presence of effects.

3.8 Cave and Karst

Affected Environment

The allotment is located within a designated area of Low Karst or Cave Potential. An inventory of significant cave or karst features has not been completed for public land located in this grazing allotment. The caprock has deep cracks, soil piping, and cave-like features and is considered karst.

Impacts from the No Action Alternative - Direct and Indirect Impacts

Cave and karst features provide direct conduits leading to groundwater. These conduits can quickly transport surface and subsurface contaminants directly into underground water systems and freshwater aquifers without filtration or biodegradation.

Further, contaminants spilled or leaked into or onto cave/karst zone surfaces and subsurfaces may lead directly to the disruption, displacement, or extermination of cave species and critical biological processes. Ground disturbing activities could disturb karst features in these areas.

BLM maintains up-to-date locations and surveys of known cave and karst features. Projects will be located away from these features whenever possible.

Impacts from the No Grazing Action - Direct and Indirect Impacts

Under the No-Action Alternative, no impacts to cave and karst resources would occur on public lands.

Impacts from the Preferred Action - Direct and Indirect Impacts

Based on a review of BLM's existing information, there will be no cumulative impacts.

Cumulative Impacts of all Alternatives

The incremental impact of grazing on cave and karst resources must be analyzed in the context of impacts from other actions. Other BLM actions that could have impacts on the identified resources include: livestock authorization on other allotments in the area, building fences, oil and gas activities on the uplands, rights-of-way crossing the area and recreational use, particularly off-highway vehicles. All authorized activities which occur on BLM land can also take place on state or private lands. The analysis of cumulative impacts is driven by major resource issues. The proposed action is the authorization of grazing on these allotments. The cumulative impacts to cave and karst resources from this action are insignificant.

Mitigation Measures and Residual Impacts

Any cave or karst feature or karst-like feature, such as a blowhole or sinkhole, discovered by the co-operator/contractor or any person working on the co-operator/contractor behalf, on BLM-managed

public land shall be immediately reported to the authorized officer. An evaluation of the discovery will be made by the authorized officer to determine appropriate action(s). Any decision as to the further mitigation measures will be made by the Authorized Officer after consulting with the co-operator/contractor.

3.9 Paleontology

Affected Environment

The BLM manages paleontological resources for their scientific, educational, and recreational values in compliance with the Paleontological Resources Preservation Act (PRPA) of 2009. The PRPA affirms the authority for many of the policies the Federal land managing agencies already have in place for the management of paleontological resources such as issuing permits for collecting paleontological resources, curation of paleontological resources, and confidentiality of locality data. The statute provides authority for the protection of paleontological resources on Federal lands including criminal and civil penalties for fossil theft and vandalism.

The BLM classifies geologic formations to indicate the likelihood of significant fossil occurrence (usually vertebrate fossils of scientific interest) according to the Potential Fossil Yield Classification (PFYC) System for Paleontological Resources on Public Lands (IM 2008-011). These classifications, Classes 1 to 5, determine the procedures to be followed prior to granting a paleontological clearance to proceed with a project.

All paleontological resource stipulations will be followed as indicated in the attached COAs. These stipulations may include, but are not limited to, altering the location or scope of the project, permanent fencing or other physical, temporary barriers, monitoring of earth disturbing construction, project area reduction or specific construction avoidance zones, and fossil recovery. If the assessment of a proposed action indicates a reasonable expectation of adverse impacts to significant paleontological resources, a field survey will be necessary to properly document and recover any fossil material and associated data. Upon review, a determination for final project clearance and stipulations shall be issued by the BLM RFO.

Most of the project area is designated as a Class 2 area (Quaternary eolian, piedmont and alluvium deposits). Ground disturbing activities are not likely to disturb paleontological resources in these areas.

Impacts from the No Action Alternative - Direct and Indirect Impacts

The Potential Fossil Yield Classification (PFYC) data indicate the Proposed Action is within an area designated as Class 2. The Proposed Action would not affect any known scientifically significant paleontological resources, however, surface disturbing activities and increased human access could produce unexpected discoveries and potential paleontological resource damage. Direct impacts could include damage or destruction during construction, with subsequent loss of information. Indirect impacts would include fossil damage or destruction by erosion due to surface disturbance.

Impacts from the No Grazing Action - Direct and Indirect Impacts

Under the No Grazing Action, grazing would not be permitted and therefore there would be no impacts to paleontological resources.

Impacts from the Preferred Action - Direct and Indirect Impacts

The Potential Fossil Yield Classification (PFYC) data indicate the Proposed Action is within an area designated as Class 2. The Preferred Action would not affect any known scientifically significant paleontological resources, however, surface disturbing activities and increased human access could produce unexpected discoveries and potential paleontological resource damage. Direct impacts could include damage or destruction during construction, with subsequent loss of information. Indirect impacts would include fossil damage or destruction by erosion due to surface disturbance.

Cumulative Impacts of all Alternatives

While it is likely that there will be no significant cumulative impact from the proposed action, surface-disturbing activities in this area may potentially have negative cumulative impacts on paleontological resources.

Mitigation Measures and Residual Impacts

If previously undocumented paleontological sites are encountered during surface disturbing activities, the project proponent will immediately stop all surface disturbing activities in the immediate vicinity of the discovery. The proponent will then immediately notify the paleontological monitor (if required) or the BLM RFO paleontology resource staff. It is necessary to protect fossil material and their geological context upon discovered during surface disturbing activities. The BLM RFO paleontology resource staff would then evaluate the site. Should the discovery be evaluated as significant, it will be protected in place until mitigation measures can be developed and implemented according to guidelines set by the BLM. Mitigation measures such as data and fossil recovery may be required by the BLM to prevent impacts to newly identified paleontological resources.

4.0 Supporting Information

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